

WaterSMART
Drought
Response
Program:
Drought
Resiliency
Project Grants
for FY 2018

United Water
Conservation District Iron
and Manganese
Treatment Project

Proposal Contents

Proposal Contents.....	i
<i>List of Tables</i>	<i>iii</i>
<i>List of Figures</i>	<i>iii</i>
<i>List of Acronyms</i>	<i>iii</i>
Section 1: Technical Proposal and Evaluation Criteria	1
1.1 Executive Summary	1
1.2 Background Data	4
1.2.1 Proposed Project Location	4
1.2.2 Water Supplies and Demands.....	4
1.2.3 Water Delivery System.....	5
1.2.4 Past Working Relationship with Reclamation	5
1.3 Technical Project Description	6
1.3.1 Project Need	6
1.3.2 Project Description, Activities and Implementation Schedule	8
1.4 Performance Measures.....	10
1.5 Evaluation Criteria.....	11
1.5.1 Evaluation Criterion A: Project Benefits	11
1.5.2 Evaluation Criterion B: Drought Planning and Preparedness ..	13
1.5.3 Evaluation Criterion C: Severity of Actual or Potential Drought Impacts to be Addressed by the Project.....	15
1.5.4 Criterion D: Project Implementation	18
1.5.5 Criterion E: Nexus to Reclamation	19
Section 2: Environmental and Cultural Resources Compliance.....	21
Section 3: Project Budget.....	24
3.1 Funding Plan and Letters of Commitment.....	24
3.2 Budget Proposal	25
3.2.1 Salaries, Wages, and Fringe Benefits	27
3.2.2 Travel	27

Proposal Contents (cont'd)

3.2.3 Equipment 27

3.2.4 Materials, and Supplies 27

3.2.5 Contractual 27

3.2.6 Environmental and Regulatory Compliance Costs 28

3.2.7 Other Expenses 28

3.2.8 Indirect Costs 28

3.3 Total Costs 28

Section 4: Required Permits and Approvals 29

Section 5: Unique Entity Identifier and System for Award Management .. 30

Section 6: References 31

Section 7: Letters of Support and Commitment 32

Section 8: Official Resolution 33

Proposal Contents (cont'd)

List of Tables

- 1 Summary of Non-Federal and Federal Funding Sources
- 2 Budget Proposal

List of Figures

- 1 Project Location
- 2 El Rio Groundwater Treatment Facility
- 3 Nitrate Concentrations in O-H Pipeline vs. Groundwater Elevation
- 4 Nitrate Concentrations for the El Rio Water and Groundwater Recharge Facility UAS Wells
- 5 California Drought Map Between 2014 and 2017

List of Acronyms

AF	Acre-feet
AFY	Acre-feet per year
ARRA	American Recovery and Reinvestment Act
AWPA	Advanced Water Purification Facility
AWWA	American Water Works Association
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CVP	Central Valley Project
Delta	Sacramento-San Joaquin Delta
DUNS	Data Universal Number System
DWR	Department of Water Resources
ESA	Endangered Species Act
FCGMA	Fox Canyon Groundwater Management Agency
FOA	Funding Opportunity Announcement
gpm	gallons per minute
GREAT	Groundwater Recovery Enhancement and Treatment
IRWMP	Integrated Regional Water Management Plan
LAS	Lower Aquifer System
MCL	Maximum Contaminant Level
mg/L	milligram per liter
N/A	Not Applicable
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System

Proposal Contents (cont'd)

O-H	Oxnard-Hueneme Pipeline System
Reclamation	Bureau of Reclamation
RFP	Request for Proposal
SAM	System of Award Management
SWP	State Water Project
SWRCB	State Water Resources Control Board
UAS	Upper Aquifer System
UWCD, United, District	United Water Conservation District
UWMP	Urban Water Management Plan
VFD	variable frequency drive

Section 1: Technical Proposal and Evaluation Criteria

1.1 Executive Summary

Date: February 9, 2018
Applicant: United Water Conservation District
Applicant City, County, State: City of Santa Paula, Ventura County, California
Project Name: Iron and Manganese Treatment Project

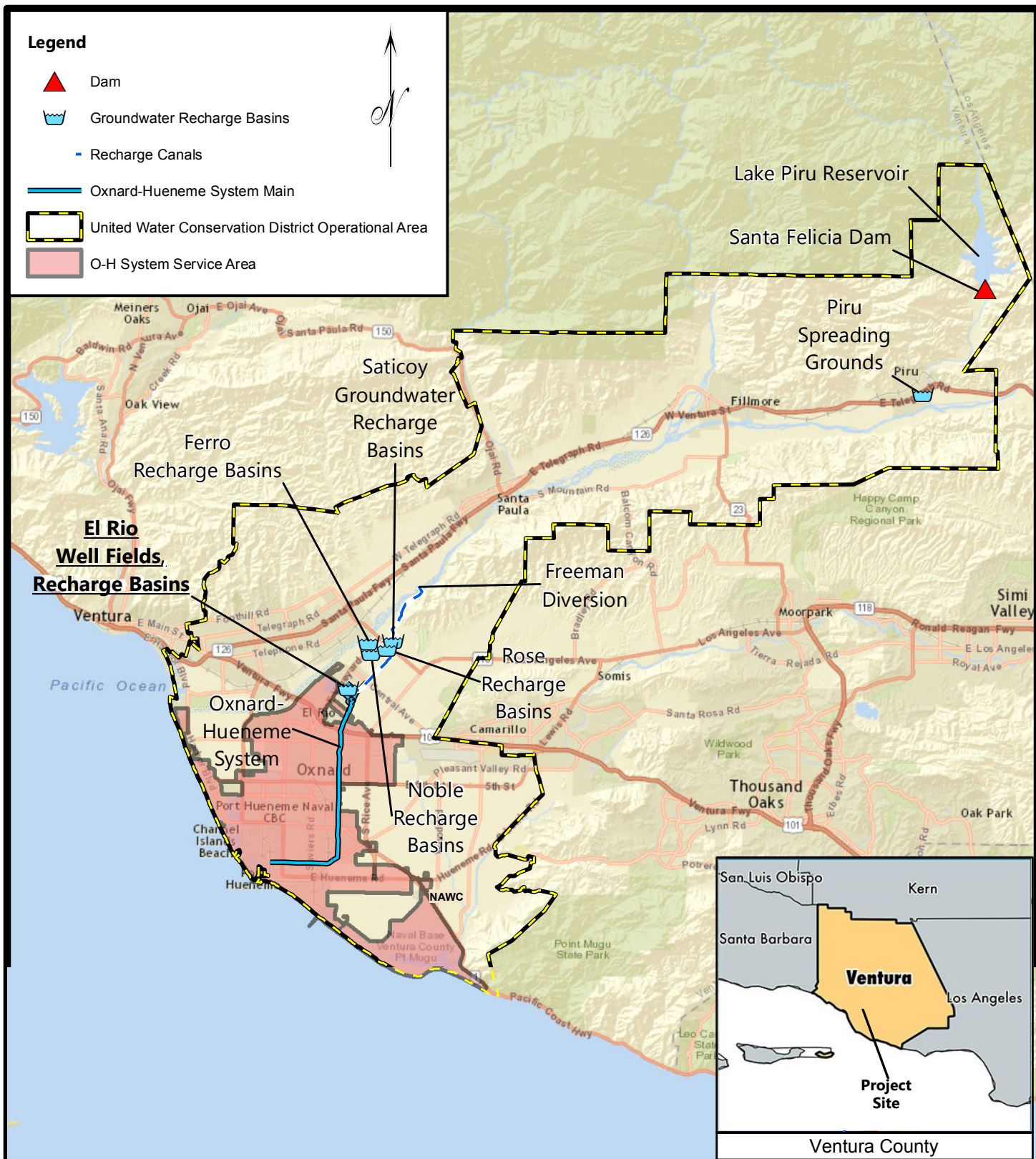
The United Water Conservation District (United) is seeking funding to construct iron and manganese filtration for deep wells at the El Rio Water Treatment and Groundwater Recharge Facility, located in Ventura County, CA. Currently, shallow wells in the Oxnard Plain are increasingly impacted by elevated nitrate levels as a result of drought-related groundwater level declines. However, the use of groundwater from the lower aquifer system for blending purposes is limited by high levels of iron and manganese. Without treatment and/or blending, use of both sources of groundwater is highly limited. In addition to the filtration component, the project includes variable frequency drive upgrades to the existing deep wells in addition to upgrades to an existing settling basin that will be used for recovery of filter backwash water. This treatment and these enhancements will enable groundwater from deep wells to be used for blending with shallow well groundwater. The project will thereby ensure that groundwater from this system can continue to be reliably delivered to customers even during severe drought conditions, while meeting both primary and secondary drinking water standards. As such, the project will improve the operational flexibility, reliability and long-term drought resilience of the system.

The proposed project will be completed within 2 years of award of the grant, approximately by March 2020.

The proposed project is not located on a Federal facility.

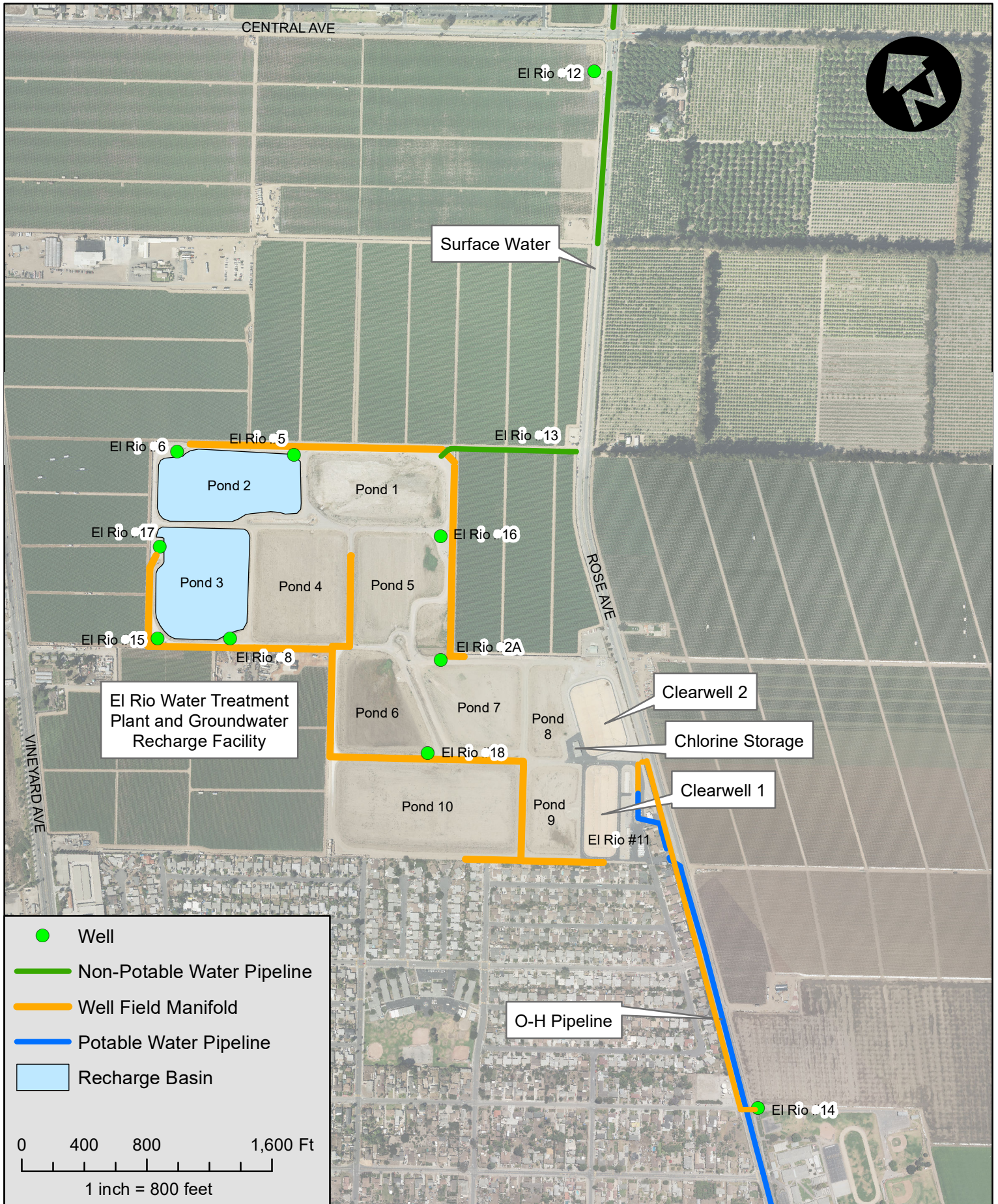
Figure 1 provides a location map for United and its facilities.

Figure 2 provides a schematic of the El Rio Groundwater Treatment Facility.



0 2.5 5
Miles
1 inch = 5 miles

Figure 1
United Water Conservation District
Service Area Boundary
and Key Facilities



● Well
 — Non-Potable Water Pipeline
 — Well Field Manifold
 — Potable Water Pipeline
 Recharge Basin

0 400 800 1,600 Ft

1 inch = 800 feet

1.2 Background Data

1.2.1 Proposed Project Location

The proposed Iron and Manganese Treatment Project (Project) will be constructed at United's El Rio Water Treatment and Groundwater Recharge Facility (El Rio Facility), located in the unincorporated area of El Rio, County of Ventura, California. The El Rio Facility is located within approximately 1 mile of the City of Oxnard and approximately 35 miles east of the City of Los Angeles. The project latitude is 34.239690 and longitude is -119.152550.

1.2.2 Water Supplies and Demands

United operates within the Santa Clara River Valley and the Oxnard Plain and covers approximately 214,000 acres in central Ventura County. Its mission is to manage, protect, conserve, and enhance the water resources of the Santa Clara River, its tributaries and associated aquifers, in the most cost effective and environmentally balanced manner. Among the facilities operated by United, are the El Rio Facility and the Oxnard-Hueneme (O-H) Pipeline system. The O-H system is a domestic water supply system serving local water to the City of Oxnard, Port Hueneme Water Agency, and several mutual water companies in the Oxnard and Port Hueneme areas. A small portion of the water supplied by the system is also distributed directly to retail customers. Drinking water supplies delivered via the O-H system are supplied from the El Rio Facility.

Sources of Water Supply and Water Rights Involved

The O-H system is supplied by 12 wells (one of which is currently inactive) that draw from the Oxnard Plain Groundwater Basin, a subbasin of the Santa Clara River Valley Groundwater Basin. In 2015, 10,920 acre-feet (AF) of groundwater was pumped for distribution in the O-H system.

United's groundwater allocation for its O-H system falls under the jurisdiction of the Fox Canyon Groundwater Management Agency (FCGMA), which manages and protects the groundwater basins underlying the southern portion of Ventura County. United's Historical Allocation for the O-H System is 14,697 acre-feet per year (AFY), which was curtailed starting in 2016 through drought restrictions imposed by FCGMA.

The groundwater extracted by United for the O-H System is primarily recharged by United at the El Rio Facility Groundwater Recharge Basins. United diverts surface water from the Santa Clara River at the Freeman Diversion and conveys the water to the recharge basins. All of the shallow wells, drawing from the Upper Aquifer System (UAS), are located at the El Rio Facility Groundwater Recharge Basins and are directly connected to the O-H System. The deep wells, drawing from the Lower Aquifer System (LAS) are not physically located within the boundaries of the El Rio Facility Groundwater Recharge Basins. However, they are recharged by these basins and are also directly connected to the O-H Pipeline, the primary transmission pipeline.

Water Uses and Projected Demands

United acts primarily as a wholesale agency, selling water supplies to other agencies (which include the Port Hueneme Water Agency, the City of Oxnard, and various mutual water

companies). Retail customers, which make up less than 0.03 percent of total demands, include two schools and E&H Land Company. The region served by the O-H System is primarily developed land with residential, commercial and industrial customers.

The total population of the wholesale service area was estimated at 225,859 in 2015 and is projected to grow to nearly 291,000 in 2040.

Demands in 2015 totaled 10,920 AFY. System water demands are projected to reach 11,757 AFY between 2020 and 2040, which are based on United's projected pumping allocations with currently imposed drought restrictions.

Water Supply Reliability

Groundwater quality can limit use of groundwater for the O-H system and it is particularly impacted under dry hydrologic conditions. Without dilution from recharge operations, when recharge operations have ceased for several months, nitrate concentrations in the UAS wells gradually increase. Groundwater from deep wells, of the LAS, can generally be used to blend shallow well groundwater. However, increased iron and manganese concentrations are limiting the ability to use water for blending without exceeding the secondary maximum contaminant levels (MCLs).

In addition, during drought conditions, groundwater allocations may be limited by FCGMA. In response to ongoing drought, FCGMA adopted Emergency Ordinance E in 2014, which requires reductions in extractions by up to 20 percent. These restrictions went into effect in 2016 for United's extractions.

1.2.3 Water Delivery System

The O-H System includes 12 groundwater wells, the El Rio Facility Treatment Plant, and the O-H Pipeline. Surface water from the Santa Clara River is distributed into a series of basins totaling approximately 80 acres. Groundwater is extracted through a system of wells, with nine (9) shallow wells at approximately 300 feet and three (3) deep wells at over 1,000 feet. The O-H Pipeline consists of approximately 12 miles of distribution pipeline ranging from 24 to 42 inches in diameter with 50 cubic feet per second (cfs) delivery capacity.

1.2.4 Past Working Relationship with Reclamation

United has had a positive working relationship with Reclamation since the late 1980s. In 1987, Reclamation provided United with a \$18,730,000 loan in support of the Freeman Diversion and Fish-Passage Facility. In the 2000s, United entered into consultation with Reclamation and the National Marine Fisheries Service (NMFS) regarding the operation of the Vern Freeman Diversion and Fish-Passage Facility. The result of that consultation was Reclamation's approval and issuance of a Final Biological Opinion (NMFS 2008). It is noted that the Biological Opinion and Reclamation's ongoing discretion over operation of the Freeman Diversion and Fish-Passage Facility terminated on December 31, 2011.

In 2010, Reclamation awarded United \$76,698 for the Saticoy Moss Screen Pipeline Gate Automation Project through the WaterSMART Water and Energy Efficiency Grant Program. Through this project United made automation and modernization improvements to more

effectively distribute surface water to two agricultural irrigation pipeline systems and the El Rio Spreading Grounds. United anticipates that the Gate Automation Projects conserves about 3,700 AFY. The project is specifically noted in Reclamation's 2012 Report of Accomplishments for the Mid-Pacific Region.

1.3 Technical Project Description

1.3.1 Project Need

The Oxnard Plain Groundwater Basin provides a reliable source of water for the O-H System except during severe droughts. Groundwater quality can limit use of groundwater for the O-H system and is particularly impacted under dry hydrologic conditions. Without dilution from basin recharge operations, when recharge operations have ceased for several months due to dry weather conditions, nitrate concentrations in the shallow wells gradually increase. As a result of recent drought conditions that started in 2011, nitrate concentrations in the shallow wells have been increasing with gradually declining groundwater levels. This correlation is shown in Figures 3 and 4. The current MCL for nitrates is 45 milligrams per liter (mg/L). Nitrate concentrations above that level are considered a health risk, particularly for infants and can result in a condition known as Methemoglobinemia or "Blue Baby Syndrome".

Figure 3. Nitrate Concentrations in O-H Pipeline vs. Groundwater Elevation

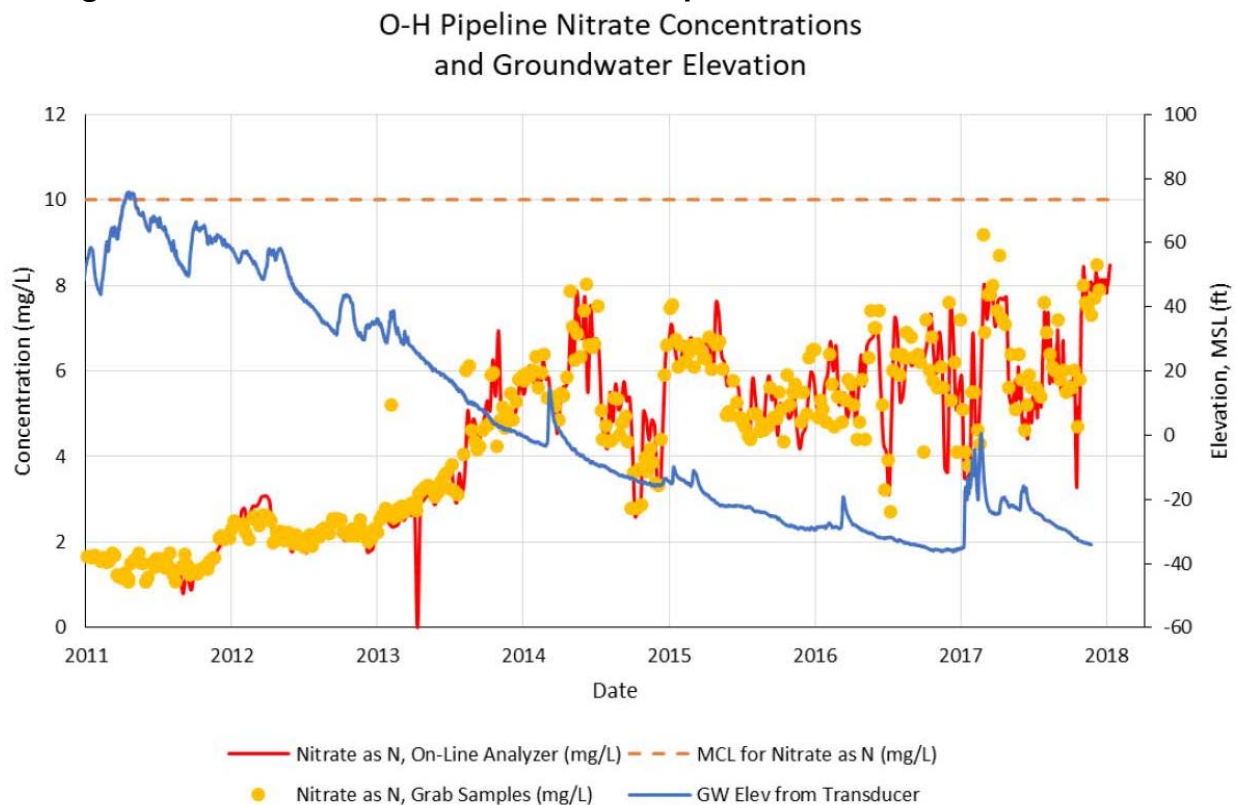
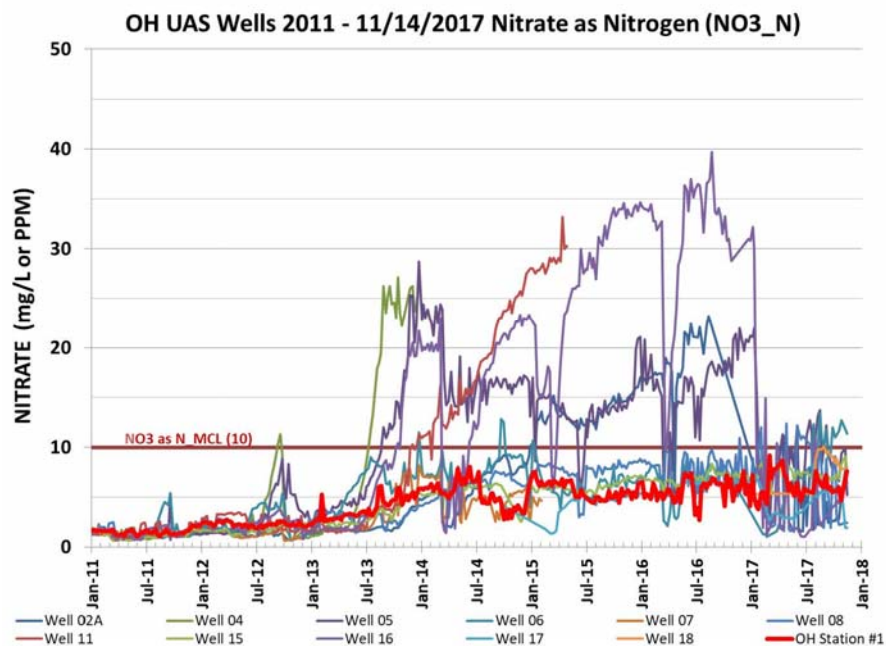


Figure 4. Nitrate Concentrations for the El Rio Water Treatment and Groundwater Recharge Facility UAS Wells



The actual nitrate concentration leaving the El Rio Facility Treatment Plant into the O-H Pipeline has not exceeded primary MCLs. However, individual samples have shown substantial exceedances. Further, the trend of increases in nitrate concentrations during the recent drought is of major concern due to the potential to reduce operational flexibility for meeting primary drinking water standards during future droughts. Should the trend continue, or should another severe drought occur, the El Rio Facility Treatment Plant could violate its drinking water permit, which could result in mandatory shutdowns and loss of this vital water supply.

Groundwater from deep wells can generally be blended with shallow wells and is only used to augment shallow well production. However, the use of deep well groundwater is problematic due to elevated iron and manganese concentrations. The high levels of iron and manganese are significantly above the secondary MCLs, affecting taste, color and odor. The current statewide secondary MCLs for iron and manganese are 0.3 mg/L and 0.05 mg/L, respectively. In contrast, in 2015, the average blended concentration of iron and manganese was 0.4 mg/L and 0.24 mg/L, respectively.

United has explored nitrate treatment of the shallow wells, but due to higher life cycle cost and the inability to use shallow wells if groundwater levels continue to decline, United has determined that iron and manganese treatment for the O-H System is the preferred method for addressing existing groundwater quality impairments while allowing use of groundwater from both, the shallow and deep wells. The project will improve the operational flexibility and drought resilience of the O-H System. It will ensure that water can be delivered to O-H Pipeline customers even during severe drought conditions while meeting both primary and secondary

drinking water standards. Overall, the project will help maintain the reliability of 11,757 AFY in supply while ensuring the continued use (maximization) of local water resources.

1.3.2 Project Description, Activities and Implementation Schedule

The proposed Project consists of the construction an iron and manganese treatment and removal system that will be located at the El Rio Facility. The filtration system will treat groundwater from deep wells to blend directly with shallow wells prior to disinfection. The project includes variable frequency drive (VFD) upgrades to the existing deep wells (Well Nos. 12, 13, and 14) in addition to upgrades to an existing settling basin that will be used for recovery of filter backwash water.

In 2016, United prepared a technical memorandum on the *Feasibility Assessment of Iron and Manganese Removal Facilities at the El Rio Water Treatment Plant (UWCD 2016)*. The report incorporates results of an on-site pilot test conducted in 2016 and includes preliminary design.

The analysis shows that treatment of one deep well will achieve project objectives. The existing manifold configuration of the deep wells would allow systematic cycling of the wells (one at a time) to ensure reliability and redundancy. The system proposed is a dual media (anthracite and manganese dioxide-coated sand) iron and manganese treatment and removal system with a capacity of 3,500 gallons per minute (gpm), or the equivalent of one LAS well. The system would include six (6) 12-ft diameter by 13-ft long pressure filter tanks that would be partially enclosed in a 3,500-square foot building. Three wells will require VFDs, two of which also require motor rewinds. One of the wells would require rehabilitation that may include additional column pipe and pump stages. The next steps in implementing the project include design and construction. Project implementation will occur based on the tasks described in the following.

PROJECT TASKS

Task 1: Project Management, Administration and Reporting

Project management will be provided by appropriate United staff to ensure successful project implementation. Activities will include project oversight, securing contracts, managing consultants, and conducting meetings as necessary to discuss project progress. Grant administration will also be performed including activities to execute the grant agreement, ensure compliance with grant requirements, submit necessary project deliverables and supporting grant documents as well as prepare and submit regular invoice and progress report materials.

Task 2: Design

The selected engineering consultant will perform a review of preliminary design and will subsequently prepare plans and specifications and engineer's estimates for the complete iron and manganese treatment system. This task also includes design activities related to the additional upgrades proposed with this project. The consultant will also assist United with coordinating with the State Water Resource Control Board (SWRCB) Division of Drinking Water for an amendment to the Drinking Water Supply permit for the O-H Pipeline (see Task

4). A Request for Qualifications and Proposals for the treatment system was issued in January 2018. Design is anticipated to be awarded by April 2018 and is projected to take between 6 to 9 months.

Task 3: Environmental Documentation

Based on the nature and location of the proposed filtration system, the project is anticipated to be categorically exempt under California Code of Regulations (CCR), Title 14, §15301 “Existing Facilities.” United will prepare and file the Notice of Exemption. In relation to NEPA, the project would correspondingly fall under a Categorical Exclusion.

Task 4: Permitting

This task includes acquisition of necessary permits for implementation of the project, which will be obtained by the selected contractor and United. Anticipated permits include the following:

- City of Oxnard – approval of sludge waste disposal at the City’s wastewater treatment plant.
- County of Ventura – approval of sludge waste disposal using the County’s sewer conveyance system
- Coverage under the SWRCB National Pollutant Discharge Elimination System (NPDES) California Construction General Permit for Discharge of Storm Water associated with Construction Activity.
- SWRCB Division of Drinking Water Amendment to Domestic Water Supply Permit

Task 5: Construction/Implementation

Upon completion of final design, construction bids will be solicited for the project. It is assumed the design consultant will assist United with the construction bid process (responding to Requests for Information, preparing addenda, etc.). The selected contractor will perform construction of the iron and manganese treatment system according to final design plans and specifications.

Construction of the treatment plant and well upgrades will involve the following elements (all are approximate, final amounts will be determined after surveying and final design):

- 3,500-square foot plant area for tanks and ancillary equipment
- Full or partial building to enclose tanks and/or equipment
- Six (6) 12-ft diameter by 13-ft long pressure filter tanks (number of tanks and their dimensions subject to change in final design)
- Piping to connect LAS wells to treatment system
- Well No. 12 Upgrades: VFD and motor rewind
- Well No. 13 Upgrades: VFD, motor rewind, new stage
- Well No. 14 Upgrades: VFD

Construction is anticipated to be completed within 8 to 12 months.

Implementation Schedule

The project will be completed within 2 years of project award, however full implementation is anticipated to occur sooner. See schedule of project activities below.

Task	Approximate Start Date	Approximate End Date
1. Project Management, Administration and Reporting	April 2018	April 2020
2. Design	April 2018	January 2019
3. Environmental Documentation	April 2018	June 2018
4. Permitting	January 2019	January 2020
5. Construction/ Implementation	January 2019	March 2020

Deliverables will include:

- Preliminary Design documents
- Final Design documents
- CEQA/NEPA documentation
- Operations Plan/Performance Monitoring Plan
- Drinking Water Supply permit amendment
- Progress Reports
- Final Completion Report

1.4 Performance Measures

The proposed project will enable United to blend UAS groundwater with LAS groundwater while meeting both primary and secondary drinking water standards for nitrate, iron and manganese. The project will thereby ensure that groundwater from this system can continue to be reliably delivered to customers even during severe drought conditions.

The specific anticipated benefits that will be accomplished with implementation of this project are:

- **Maximize use of available groundwater resources.** Based on the currently imposed FCGMA pumping restrictions, United projects O-H System supplies and demand to total 11,757 AFY through 2040. The project would enable full delivery of those supplies, even during drought conditions.
- **Meet primary and secondary drinking water standards for nitrates, iron and manganese.** The primary MCL for nitrates is 45 mg/L. Secondary MCLs for iron and manganese are 0.3 mg/L and 0.05 mg/L, respectively. The project would enable United to meet those MCLs in its delivered water.

United meters the amount of water it delivers to customers. In order to measure attainment of the water quantity benefit, United will compare metered deliveries to its maximum groundwater pumping allocation. United performs regular water quality monitoring to ensure compliance

with applicable drinking water standards. Water quality monitoring after project implementation will be used to document project performance.

1.5 Evaluation Criteria

Descriptive narratives addressing how the proposed project meets grant criteria are provided in the following subsections. The evaluation criteria, as described in the Funding Opportunity Announcement (FOA), are presented first in *italics*, followed by specific information on the proposed project.

1.5.1 Evaluation Criterion A: Project Benefits

- *How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?*

Groundwater from shallow wells has become increasingly impaired by high levels of nitrates during drought. Water quality impairments in the deep wells limits the ability to blend deep well water with the high-nitrate shallow wells. These conditions are threatening United's ability to reliably deliver its water supplies, especially during a drought.

By installing the iron and manganese filtration system, LAS groundwater can be used to blend with UAS groundwater during water shortages. The project will improve the operational flexibility and drought resilience of the O-H Pipeline system. It will ensure that water can be delivered to O-H Pipeline customers even during severe drought conditions while meeting both primary and secondary drinking water standards. The project also allows the continued use of local resources that can be replenished with local sources. The project directly benefits several economically disadvantaged communities that receive drinking water from the O-H Pipeline system.

Benefits of this project could be provided indefinitely, assuming continued operation and functionality of the installed infrastructure. The expected life of the infrastructure improvement is assumed to be approximately 40 years (based on [EPA 2003]).

- *Will the project make additional water supplies available?*

The project will not make additional water supplies available, but will rather improve management, reliability and delivery of 11,757 AFY of existing water supplies, as discussed below.

- *If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated?* Not Applicable (N/A)
- *What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?* N/A
- *Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies.* N/A

- *Will the project improve the management of water supplies?*

The proposed project will improve the management of available groundwater supplies, thereby increasing operational flexibility and local supply reliability, particularly during drought conditions.

- *If so, how will the project increase efficiency or operational flexibility?*

Without the project, United is unable to maximize use of its available groundwater supplies during drought conditions. Under drought conditions, shallow groundwater becomes increasingly impaired by nitrates. Deep wells are however impaired by high levels of iron and manganese, thereby limiting the ability to blend both groundwater sources for continued deliveries of drinking water. With implementation of the project, LAS groundwater can be used for blending with high-nitrate UAS groundwater. Therefore, rather than both sources being unusable, they can both be maximized. This preserves 11,757 AFY in supply.

- *What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?*

United anticipates groundwater demands and availability to be 11,757 AFY through 2040, for the O-H System. This amount is the current maximum pumping allocation that could be produced by United's UAS and LAS wells. In the case of a severe drought, UAS groundwater would be compromised by high nitrate concentrations and LAS groundwater will not be able to be used without exceeding secondary MCLs. The iron and manganese system will treat LAS well water which can then be blended with high-nitrate UAS groundwater, to enable use of both sources. Therefore, it is assumed that this project would improve management of United's full supply to the O-H System.

Preliminary design based on the August 2016 technical memorandum assumes a treatment capacity of 3,500 gpm, which is equivalent to approximately 5,600 AFY. The deep LAS wells are more energy intensive than the UAS wells. Therefore, the deep wells will be equipped with VFDs that will enable them to be down-turned to the volume of low-nitrate water that is needed to reduce nitrate concentrations in the blended water supply.

- *How will the project increase efficiency or operational flexibility?*

See response above. Operational flexibility will be improved by removing the water quality impairment (iron and manganese) of the deep LAS wells which ensures a reliable water supply for the O-H pipeline during long periods of drought. The project will also improve energy efficiency by installing VFDs on the existing LAS wells which ensures minimal energy consumption while meeting all primary and secondary MCLs.

- *What percentage of the total water supply does the water better managed represent? How was this estimate calculated?*

It is assumed that the project would improve management of 100 percent of United's supply to the O-H System. Without the project, under drought conditions, UAS groundwater may become too high in nitrates to be usable without blending. On the other hand, iron and

manganese concentrations in the LAS limit its use for blending purposes as it already exceeds secondary MCLs. By treating LAS supplies with the proposed treatment system, both LAS and UAS supplies can be maximized.

- *Provide a brief qualitative description of the degree/significance of anticipated water management benefits.*

United's ability to continue to meet its full water demands during drought conditions is highly threatened by nitrate impairments in the UAS. The UAS provides the main source of O-H System supplies, while LAS is generally used in small amounts, and mostly during water shortages. If nitrate concentrations increase beyond primary MCLs, United would be forced to suspend use of UAS supplies and maximize use of LAS supplies which are impaired by high concentrations of iron and manganese. The O-H System has no other sources of supply other than groundwater under the influence of surface water. Therefore, being able to maximize use of both groundwater sources is crucial to continued supply reliability for all United customers.

- *Will the project make new information available to water managers?*

Preliminary studies performed for this project, including the pilot testing and technical memorandum provide valuable information on the feasibility of iron and manganese removal in the Oxnard Groundwater Basin and assessment of various treatment methods. The O-H pipeline stakeholders have been informed and engaged in the entire process by attending stakeholder meetings and being provided with these studies. Those studies are potentially useful for other water managers that are facing similar groundwater quality challenges.

- *Will the project have benefits to fish, wildlife, or the environment?*

The project is not anticipated to have substantial direct benefits to fish, wildlife, or the environment. The project will improve the quality and reliability of groundwater for drinking water purposes and maximize the use of local water resources.

Additional project components listed on Pages 36 to 37 in the Funding Opportunity Announcement are not applicable to the proposed Project.

1.5.2 Evaluation Criterion B: Drought Planning and Preparedness

- *Attach a copy of the applicable drought plan, or sections of the plan, as an appendix to your application. Explain how the applicable plan addresses drought.*

The project is discussed in United's 2015 Urban Water Management Plan (UWMP) (see pages 23, 33, 34), which addresses water shortage contingency planning (MNS Engineers, Inc. 2016). The Plan identifies stages of actions to be taken in response to water supply shortages and outlines specific water supply conditions applicable to each stage. As discussed in the UWMP, the O-H System is currently operating under a one-year waiver from DDW. As documented in the May 4, 2017 letter from the SWRCB to United (see Section 7 Letters of Support and Commitment) United sought approval from the O-H System stakeholders to implement iron and manganese treatment in the next one to two years.

The other comprehensive planning document within Ventura County is the 2014 Integrated Regional Water Management Plan (IRWMP) which discusses both climate change and drought (refer to Chapter 13. Climate Change) (WCVVC 2014). The proposed project directly meets two of the IRWMP objectives: projecting and improving water quality and preparing and adapting to climate change.

- *Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?*

The UWMP was prepared under coordination with local land use jurisdictions, with United's wholesale customers, including its urban water suppliers, mutual water companies and its retail customers.

- *Does the drought plan include consideration of climate change impacts to water resources or drought?*

As mentioned above, the 2014 IRWMP includes an analysis of climate change impacts and drought conditions on water resources within Ventura County. Vulnerabilities increased demands, decreased supplies, documented in the IRWMP provided a backdrop to the UWMP. The UWMP in turn considers supplies in wet, average, multiple-dry and single-dry years.

- *Describe how your proposed drought resiliency project is supported by an existing drought plan. Does the drought plan identify the proposed project as a potential mitigation or response action?*

The proposed project is discussed in the water supply reliability chapter of the UWMP in connection with the potential of water quality impairments to affect water supply reliability. With treatment of groundwater, water quality is otherwise not expected to impact water supply reliability of the O-H System.

- *Does the proposed project implement a goal or need identified in the drought plan?*

The proposed project helps improve water supply reliability of the O-H System by increasing operational flexibility under drought conditions. As stated in the 2015 UWMP (page 41), United's Board of Directors adopted Resolution No. 2014-01 in March 2014. Resolution No. 2014-01 declares the existence of drought conditions and sets the policies directing specific actions to be taken. Resolution No. 2014-01 also prioritizes the use of surface water diverted from the Freeman Diversion, with compliance with drinking water standards for nitrate as the highest priority.

- *Describe how the proposed project is prioritized in the referenced drought plan?*

United's Board of Directors adopted Resolution No. 2014-01 in March 2014. Resolution No. 2014-01 declares the existence of drought conditions and sets the policies directing specific actions to be taken. Resolution No. 2014-01 also prioritizes the use of surface water diverted from the Freeman Diversion, with compliance with drinking water standards for nitrate as the highest priority.

1.5.3 Evaluation Criterion C: Severity of Actual or Potential Drought Impacts to be Addressed by the Project

- *What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken, and how severe are those impacts?*

United's groundwater supplies provide a critical drinking water supply to its customers that serve a population of over 225,000. Its largest customers rely heavily on this resource. In the case of the Port Hueneme Water Agency, groundwater supplies from United make up approximately 80% of total supplies. For the City of Oxnard, United's groundwater made up about 30% of total supplies in 2015.

If United is unable to operate the El Rio wellfield because of high nitrate concentrations and cannot provide drinking water to the O-H pipeline, the customers would have to switch to their other water supplies (namely SWP water) which burdens that system and greatly increases operational costs for United's customers. The mutual water companies that United serves do not have connections to the SWP. Therefore, those mutual water companies would have to rely on their own groundwater wells which may already be impacted or inoperable.

Recent and ongoing drought conditions resulted in groundwater pumping curtailments by the local groundwater management agency (FCGMA), but additional threats to the reliability of United's groundwater deliveries are tied to water quality impairments from nitrates, iron and manganese. United aims to provide reliable drinking water that meets, both, primary and secondary drinking water standards. During drought conditions, LAS groundwater is necessary to blend with high nitrate water, but the blending water exceeds secondary iron and manganese MCLs. The O-H System is currently operating under a one-year waiver from DDW. As documented in the May 4, 2017 letter from the SWRCB to United (see Section 7 Letters of Support and Commitment), United has sought approval from the O-H System stakeholders to implement iron and manganese treatment. Treatment of its groundwater is the identified means to ensure continued reliable deliveries to the O-H System.

- *Whether there are ongoing or potential environmental impacts*

The primary concern to be addressed with the project is drinking water availability and reliability, which is a public health issue.

- *Whether there are ongoing, past or potential, local, or economic losses associated with current drought conditions (e.g., business, agriculture, reduced real estate values)*

If United's groundwater supplies became unusable due to drought conditions, there would be substantial economic burdens on its customers. The cost of water for municipal and industrial (M&I) users on the O-H pipeline is over \$700/AF. The cost of SWP water from Calleguas Municipal Water District (the regional wholesaler of imported SWP) is over \$1,300/AF. This is about an 85% increase, or \$600/AF increase in cost for water to replace the O-H pipeline water supply. In addition, all M&I water bills would increase.

- *Whether there are other drought-related impacts not identified above.*

With less reliability of local groundwater, water agencies including United customers are more dependent on alternative resources, including imported water supplies to meet demands. Imported supplies are already strained with high demands, continued dry hydrologic conditions, and the need to protect the integrity of Delta ecosystems.

By supplying groundwater from the Oxnard Forebay basin and delivered via the O-H System, United can prevent pumping at individual wells in coastal areas of the Oxnard Plain that could accelerate seawater intrusion.

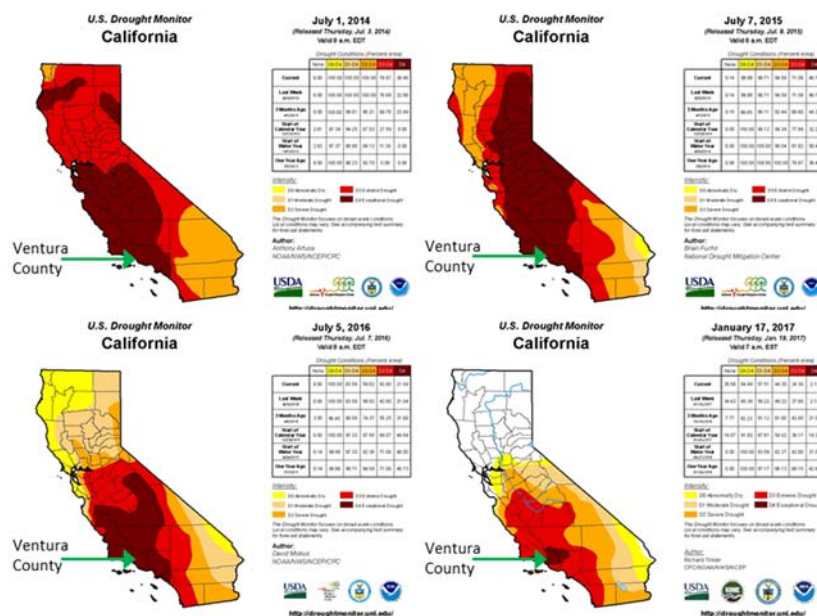
- *Describe existing or potential drought conditions in the project area.*

Ventura County has experienced some of the most severe drought conditions nationwide since 2012 (U.S. Drought Monitor, California Drought Map, March 13, 2012). Between 2014 and 2017 all or parts of the County were under conditions of “exceptional drought”, according to the U.S Drought Monitor¹ and as shown in Figure 5. Although conditions have improved, the entire County continues to experience “moderate drought” conditions². These conditions have resulted in substantial declines in groundwater levels in the Oxnard Basin, as seen in Figures 3 and 4. It is impossible to predict how drought conditions may improve or worsen in the next few years, however, severe drought conditions are certain to occur in the short-term and the long-term. Groundwater level declines as well as water quality impairments are anticipated to ensue as a direct result. It is for this reason, that United is proactively taking steps to facilitate maximization of its groundwater supplies and ensure continued reliable drinking water deliveries.

¹ Based on U.S. Drought Monitor Map Archive. Available at: <http://droughtmonitor.unl.edu/Maps/MapArchive.aspx>

² Based on U.S. Drought Monitor map from January 23, 2018. Available at: <https://www.drought.gov/drought/states/california>

Figure 5. California Drought Map Between 2014 and 2017



- *Is the project in an area that is currently suffering from drought or which has recently suffered from drought?*

As noted above, Ventura County, within which the project is located, has experienced substantial drought conditions over the last 6 years, starting in 2012. During that time, all or parts of the County were under “exceptional drought” conditions over a 3-year period, starting in early 2014 and ending in early 2017. To date the County continues to experience “moderate drought” conditions. See also response above and Figures 5 and 6.

- *Describe any projected increases to the severity or duration of drought in the project area resulting from climate change.*

Based on the climate change analysis performed as part of the 2014 IRWMP covering Ventura County, the County will likely experience more frequent droughts of longer duration as a result of climate change impacts. Based on modeled scenarios (from Cal-Adapt), County annual rainfall totals are projected to decline starting in the next approximately 20 years, and precipitation is anticipated to generally be less predictable³.

³ Chapter 13.0 Climate Change of the 2014 Integrated Regional Water Management Plan for the Watersheds Coalition of Ventura County. Available at: <http://vcportal.ventura.org/WCVC/IRWMP/2014/Section13.0.pdf>

1.5.4 Criterion D: Project Implementation

- *Describe the implementation plan of the proposed project.*

The overall project schedule is provided in Section 1.3.2. As summarized in that Section, United is currently soliciting Proposals from qualified engineers to conduct design of the proposed treatment plant. Based on the current schedule, design is anticipated to be awarded by April 2018. The selected engineer will prepare plans and specifications and engineer's estimates for the treatment plant. Final design activities are anticipated to be completed by January 2019. Upon notice of grant award, United will proceed with filing of the CEQA notice of exemption, followed by preparation of appropriate NEPA documentation.

Construction bids will be solicited upon completion of final design. The selected contractor will then perform construction of the iron and manganese treatment plant, including upgrades to three LAS wells. The project is anticipated to be fully operational by March 2020.

- *Describe any permits that will be required, along with the process for obtaining such permits.*

The selected contractor(s) will be required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (part of the NPDES program). An approval will need to be obtained from the City of Oxnard in order to dispose of the filtration backwash sludge to the City's sewer system. Based on analyses of the technical memorandum, the sewer is anticipated to have sufficient capacity for receiving the anticipated sludge loads. Once the project is constructed, United will also have to obtain an amendment to its existing Domestic Water Supply Permit from the Division of Drinking Water.

- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

In 2016, United prepared a technical memorandum on the feasibility of the project (United 2016). The report presents preliminary design criteria and conceptual level construction cost estimates. The report is based on, and incorporates results from, an on-site pilot test that was conducted in 2016 to assess a manganese greensand filtration plant.

Treatment of one deep well is expected to achieve project objectives. The existing manifold configuration of the deep wells would allow systematic cycling of the wells (one at a time) to ensure reliability and redundancy. The system proposed is a dual media (anthracite and manganese dioxide-coated sand) iron and manganese treatment and removal system with a capacity of 3,500 gpm, or the equivalent of one LAS well.

- *Describe any new policies or administrative actions required to implement the project.*

The project would not require any new policies or administrative actions. Groundwater pumping would continue to occur in accordance with FCGMA allocations for the basin.

- *Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?*

Based on the nature and location of the proposed filtration system, the project is considered to be categorically exempt under California Code of Regulations (CCR), Title 14, §15301 “Existing Facilities.” Related to CCR, Title 14, §15301, the proposed project “involves negligible or no expansion of an existing use” at an existing public utility facility. In relation to NEPA, the project would correspondingly fall under a Categorical Exclusion. These exemptions are expected to have minimal costs. See Section 2 of this application for more detail on the anticipated environmental impacts of the project.

1.5.5 Criterion E: Nexus to Reclamation

- *How is the proposed project connected to a Reclamation project or activity?*

The proposed project is connected to the Freeman Diversion (i.e. groundwater wells under the influence of surface water). Reclamation approved United’s operation of the Freeman Diversion and Fish-Passage Facility (NMFS 2008) in 2008. The Freeman Diversion, built in 1991, diverts water from the Santa Clara River and replenishes it to groundwater recharge basins in the Oxnard Forebay Basin, including the El Rio Facility and groundwater recharge basins. As discussed in Section 1.2.4 above, the Freeman Diversion was a Reclamation funded project until the end of 2011.

- *Will the project benefit any tribe(s)?*

There are several Native American tribes represented in Ventura County including the Chumash, Barbareno and Ventureno Indians (2014 IRWMP). According to the 2012-2016 American Community Survey 5-Year Estimates, approximately 6,294 American Indian and Alaska Native persons live within Ventura County (~0.1% of the total population) (US Census Bureau 2016). The 2014 IRWMP, in Figure 3-15 (WCVC 2014, page 3-81) shows the census blocks within the County in which Native Americans reside. As shown in the map, some of this population lives within the service area of the O-H pipeline. Any improvements to water quality and water supply reliability through enhancements of the O-H pipeline facilities will directly benefit these communities.

- *Does the applicant receive Reclamation project water?*

The applicant does not receive Reclamation project water. United’s water sources are local surface water, groundwater, and SWP imported water (delivered via surface water). Surface water from Lake Piru releases and natural runoff from the Santa Clara River recharge the Oxnard Basin from which O-H system supplies are pumped.

- *Is the project on Reclamation project lands or involving Reclamation facilities?*

The proposed project is not located on Reclamation project lands. However, the project does involve the El Rio Groundwater Recharge Basins which receive surface water for recharge via the Freeman Diversion, a Reclamation-funded and -approved facility (see Section 1.2.4).

- *Is the project in the same basin as a Reclamation project or activity?*

The proposed project is located within the Oxnard Plain Basin, within which the Oxnard Advanced Water Purification Facility (AWPF) is also located. The AWPF is part of Phase 1 of the Groundwater Recovery Enhancement and Treatment Program (GREAT) which was funded from the American Recovery and Reinvestment Act (ARRA), administered by Reclamation. The ARRA-funded project provides the infrastructure for to recycle approximately 7,000 AFY for direct reuse and groundwater recharge.

The O-H pipeline contributes to Oxnard's water supply, which contributes to Oxnard's wastewater supply, which is processed by the AWPF. The water is used directly by the AWPF. Additionally, iron and manganese is known to foul reverse osmosis membranes. While this is not currently known to occur at the AWPF, it reduces the potential for this to occur.

- *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The proposed project will improve the management of water within the Oxnard Plain Basin, within which the Oxnard AWPF is also located. See also response above.

Section 2: Environmental and Cultural Resources Compliance

Based on the nature and location of the proposed filtration system, the project is considered to be categorically exempt under California Code of Regulations (CCR), Title 14, §15301 “Existing Facilities. The project would correspondingly fall under a NEPA categorical exclusion.

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

The proposed treatment system will be located within the existing El Rio Facility, which was originally constructed in 1956. The site is an improved site that encompasses about 80 acres of recharge basins, two lined earthen and covered clearwells and chlorine storage. Based on preliminary design considerations presented in the technical memorandum (United 2016), it is anticipated that the proposed system will require minor grading to accommodate the plant building. In addition, trenching will be required to install pipelines connecting the LAS wells to the plant. Pipelines are anticipated to extend approximately 4,500 feet.

The proposed earthwork is not anticipated to have substantial impacts on air quality.

Construction and earth disturbing work generally have the potential to temporarily impact water quality, but it is anticipated that water from construction activities could easily be contained on-site and could in fact be treated, as needed, and recharged in one of the El Rio ponds. Construction activities will be conducted in compliance with local and state stormwater laws, including the Ventura County Stormwater Program, which will minimize potential stormwater quality impacts resulting from project activities. Coverage under the General Permit for Discharge of Storm Water associated with Construction Activity will be obtained. Obtaining this coverage would require preparation and implementation of a stormwater pollution prevention plan (SWPPP) which will specify best management practices to prevent construction activities to cause offsite water quality impacts. Over the long-term, the project will benefit water quality.

The proposed treatment plant will be installed within the existing El Rio Facility site. Pipelines would be installed within the El Rio Facility site and along already established roads. Since the project areas of impact are already disturbed and improved, there are no anticipated impacts within the project area or immediate vicinity on animal habitat or sensitive biological resources.

- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

As mentioned above, the project will be implemented in areas that are already developed or disturbed, where biological resource values are minimal and suitability for sensitive species

habitat is limited. Based on available United States Fish and Wildlife Service maps⁴, no proposed or final critical habitat for threatened and endangered species is located at or in the immediate vicinity of the project site. As such, construction activities are not anticipated to affect species that are listed or proposed for Federal listing.

- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.*

There are no wetlands or other surface waters inside the project boundaries.

- *When was the water delivery system constructed?*

The O-H system was constructed in 1954.

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

The proposed project will not result in any modifications of or effects to any irrigation system.

- *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.*

There are no buildings, structures, or features in within or in the immediate vicinity of the project site that are listed or eligible for listing on the National Register of Historic Places. There are, however, two such sites within United’s service area: the Oxnard Public Library and the Women’s Improvement Club of Hueneme. The closest site is about 3 miles away from the project site.

- *Are there any known archeological sites in the proposed project area?*

Based on a review of the California Office of Historic Preservation list of historical resources, there are no known archeological sites within the proposed project area. Additionally, based on the location of the proposed project, which is within already disturbed and or developed areas, it is not anticipated that archeological sites would be found within the proposed project area.

⁴ U.S. fish and Wildlife Service Environmental Conservation Online System, Online Mapper. Available at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>

- *Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*

The project will not have a disproportionately high or adverse effect on low income or minority populations. Benefits of the project would be shared equally by all water users of the O-H System.

- *Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?*

No, the project will not limit access to or ceremonial use of Indian sacred sites or result in other impacts on tribal lands. The plant will be installed within the El Rio Facility and well pipelines would be installed underground within already established roadways.

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

The proposed project is not anticipated to contribute to the introduction, continued existence, or spread of, noxious weeds or non-native invasive species.

Section 3: Project Budget

3.1 Funding Plan and Letters of Commitment

- *[Describe] How you will make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).*

Monetary contributions will come from United's capital improvement program funds. The source of District funds is the O-H Pipeline Capital Improvement Project fund (451).

The non-Federal share will be provided solely by United.

- *Describe any donations or in-kind costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:*
 - *The project expenditure and amount*
 - *The date of cost incurrence*
 - *How the expenditure benefits the project*
 - *Provide the identify and amount of funding to be provided by funding partners, as well as the required letters of commitment*

As described previously, United has already completed preliminary design efforts in the form of the technical memorandum and pilot study (United 2016). These costs are not being included as project costs; they are separate from the costs being requested in this application. The project budget shown below encompasses costs that will be incurred upon award of funding or upon design award, whichever comes first.

- *Describe any funding requested or received from other Federal partners*

No funding has been requested or received from other Federal partners.

- *Describe any pending funding requests that have not yet been approved and explain how the project will be affected if such funding is denied.*

There are no other outstanding funding requests. If funding for the project is denied, the project schedule could be delayed.

Table 1 below summarizes all funding sources (non-Federal and Federal) for the proposed project.

TABLE 1. SUMMARY OF NON-FEDERAL AND FEDERAL FUNDING SOURCES

Funding Sources	Funding Amount
Non-Federal Entities	
United Water Conservation District	\$3,910,650
Non-Federal Subtotal	\$3,910,650
Other Federal Entities	\$0
Other Federal Subtotal	\$0
Requested Reclamation Funding	\$300,000

3.2 Budget Proposal

The Project Budget consists of costs associated with the implementation of the proposed project and fall within various budget categories, including equipment, supplies, materials, contractual and/or implementation, among others. The budget proposal is provided in Table 2, which reflects all budget categories listed in the Funding Opportunity Announcement (FOA). The budget items included in the table are described in detail below.

TABLE 2. BUDGET PROPOSAL

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
Salaries and Wages (a)				
Not Applicable	-	-	-	\$0
Fringe Benefits				
Not Applicable	-	-	-	\$0
Travel				
Not Applicable	-	-	-	\$0
Equipment				
Pressure filters (b)	Engineer Estimate			\$678,000
Electrical control panel and instrumentation (b)	Engineer Estimate			\$139,000
VFD and motor rewind for Well No. 12 (b)	Engineer Estimate			\$54,000
VFD, motor rewind, new stage for Well No. 13 (b)	Engineer Estimate			\$130,000
VFD for Well No. 14 (b)	Engineer Estimate			\$107,000

<i>Subtotal Equipment</i>		\$1,108,000
Supplies and Materials		
Building enclosure (supplies and materials) (c)	Engineer Estimate	\$448,000
Plant Piping and Valves (filter valves and piping) (b)	Engineer Estimate	\$182,000
Yard Piping and Valves (various pipes, fittings and valves) (b)	Engineer Estimate	\$336,000
<i>Subtotal Supplies and Materials</i>		\$966,000
Contractual/Implementation		
Design (d)	Engineer Estimate	\$400,000
Construction Administration (e)	Engineer Estimate	\$611,850
Construction (f)	Engineer Estimate	\$1,109,300
<i>Subtotal Contractual/Implementation</i>		\$2,121,150
Other/Environmental and Regulatory Compliance		
City of Oxnard and County approvals of sludge waste disposal (g)	Engineer Estimate	\$3,000
SWRCB SWPPP (g)	Engineer Estimate	\$8,000
SWRCB Amendment to Domestic Water Permit (g)	Engineer Estimate	\$3,000
CEQA/NEPA (h)	Engineer Estimate	\$1,500
<i>Subtotal Other/Environmental and Regulatory</i>		\$15,500
Total Direct Costs		\$4,210,650
Indirect Costs (i)		
Not Applicable		
Total Estimated Project Costs		\$4,210,650

Notes:

- (a) UWCD will perform project management activities. United treats project management as normal staff activity and will not seek reimbursement for these costs.
- (b) Cost estimates from UWCD Technical Memorandum Feasibility Assessment of Iron and Manganese Removal Facilities at the El Rio Water Treatment Plant (UWCD 2016), page 45. Well No. 14 requires a VFD only.
- (c) Cost estimates from UWCD Tech Memo August 2016, page 45. The ideal scenario is to provide a temperature-controlled environment for oxidation and filtration efficiency. However, this is not a requirement. Alternatives that would reduce costs include a building that would partially enclose filtration units or a canopy.
- (d) Preliminary engineering estimate. District released design RFP in January 2018. Proposals due April 2018.

- (e) Cost estimates from UWCD Tech Memo August 2016, page 45. Includes costs for Construction Administration assumed at 5% of total construction cost of \$2,449,000, General Conditions assumed at 10% of total construction cost of \$2,449,000, and 10% of total construction cost of \$2,449,000 for contingency.
- (f) Cost estimates from UWCD Tech Memo August 2016, page 45. Includes costs for Construction Labor (assuming 6 months construction) at \$375,000, contractor mobilization and insurance assumed at 10% of total construction cost of \$2,449,000, and contractor overhead and profit assumed at 10% of total construction cost of \$2,449,000, and 10% of total construction cost of \$2,449,000 for contingency.
- (g) Cost estimates based on recent similar permits obtained by the UWCD.
- (h) Cost estimate based on past experience and environmental document filing fees. Assumes preparation of CEQA Categorical Exemption/NEPA Categorical Exclusion.
- (i) Operation and Maintenance costs not included.

3.2.1 Salaries, Wages, and Fringe Benefits

The majority of project work will be conducted by specialized contractors. For this reason, United will not be seeking reimbursement for United's staff time spent on the project. Fringe benefits are not included in the overall project budget.

3.2.2 Travel

United staff anticipate visiting the project site periodically during construction, but travel to United's facilities is a part of normal activity for United staff and no reimbursement or match for staff travel is being sought. It is not known at this time whether consultant costs for travel will be required. If so, those costs would be included within the "contractual" budget category with any consultant/contractor cost estimates.

3.2.3 Equipment

Based on conceptual cost estimates developed for the technical memorandum (United 2016) the total equipment costs are anticipated to total \$1,108,000. This cost includes equipment for the treatment plant and upgrades at Well Nos. 12, 13, and 14. All equipment is related to construction.

3.2.4 Materials, and Supplies

Based on conceptual cost estimates, supplies and materials are estimated at \$966,000. Those costs encompass materials for the plant building as well as, both, plant and yard piping and appurtenances. All supplies are related to construction.

3.2.5 Contractual

Contractual/Construction work to be performed by contractors is described in Section 1.3.2 of this application. Consultants are anticipated to be used to perform final design and a contractor will perform construction of the treatment plant and associated pipelines. A contractor may also

be utilized as an independent construction manager, who will also have responsibility for labor compliance during construction. Cost estimates for contractors to construct the project are based on engineer cost estimates developed as part of the technical memorandum. Costs for design are from a consultant estimate based on prior experience with similar work.

All estimates are considered fair and reasonable.

3.2.6 Environmental and Regulatory Compliance Costs

As described previously, the project is considered to be categorically exempt under CEQA and categorically excluded under NEPA. The filing of relevant documentation to comply with, both, CEQA and NEPA is encompassed in these costs. In addition, permits will need to be obtained for implementation of the project.

Total environmental and regulatory compliance costs are based on similar permits previously obtained by United.

3.2.7 Other Expenses

No other expenses are anticipated that are not captured under the above categories.

3.2.8 Indirect Costs

No indirect costs are included in the proposed budget.

3.3 Total Costs

The total cost of the proposed project is **\$4,210,650**. Funding sources for the project currently include funding from United and requested funding from Reclamation. United is requesting \$300,000 in funding from Reclamation to fund the proposed project. This represents 7% of the total project costs. No other Federal funding has been requested or received for the proposed project.

Section 4: Required Permits and Approvals

Anticipated permits for the project include the following:

- City of Oxnard – approval of sludge waste disposal

United will work with the City of Oxnard to obtain the necessary approvals for sludge waste disposal. The preferred approach for sludge disposal is using the existing sewer connection at the El Rio Facility. Prior pilot plant testing did not confirm the potential hazard of sludge generated and suitability for sewer disposal. The design consultant will review existing Well Nos. 12, 13 and 14 water quality data as provided and provide recommendations on whether additional testing is needed and will assist the District in determining options for disposal of sludge.

- County of Ventura – approval of sludge waste through existing sewage collection system

United will work with the County of Ventura to obtain the necessary approvals for sludge waste disposal. The preferred approach for sludge disposal is using the existing sewer connection at the El Rio Facility. Prior pilot plant testing did not confirm the potential hazard of sludge generated and suitability for sewer disposal. The design consultant will review existing Well Nos. 12, 13 and 14 water quality data as provided and provide recommendations on whether additional testing is needed and will assist the District in determining options for disposal of sludge.

- SWRCB NPDES coverage. Will require preparation of a Storm Water Pollution Prevention Plan (SWPPP)

The construction contractor will be required to obtain the SWPPP for the project as well as maintenance of any associated Best Management Practices at the project site.

- SWRCB Amendment to Domestic Water Supply Permit

The design consultant will assist United in obtaining an amendment to the DDW Water Supply Permit. At least one meeting with the SWRCB DDW is planned to discuss the requirements for obtaining the permit amendment.

Section 5: Unique Entity Identifier and System for Award Management

United is registered in the System for Award Management (SAM) and will maintain an active SAM registration during the period of any federal assistance agreement.

United's DUNS number is 1218780940000.

United's entity identifier number in SAM is 1955UWCD1.

Section 6: References

- Environmental Protection Agency (EPA). 2003. Asset Management: A Handbook for Small Public Water Systems – STEP Guide Series (EPA 816-R-03-016).
- National Marine Fisheries Service (NMFS), Southwest Region. 2008. Final Biological Opinion; Approve United Water Conservation District's Proposal to Operate the Vern Freeman Diversion and Fish-Passage Facility. Available at: http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/south_central_southern_california/nmfs_bo_vern_freeman_fish_passage_facility_7-23-08.pdf. July 23, 2008.
- United Water Conservation District (UWCD). 2016. Technical Memorandum: Feasibility Assessment of Iron and Manganese Removal Facilities at the El Rio Water Treatment Plant. August 11, 2016.
- MNS Engineers Inc., 2016. United Water Conservation District 2015 Urban Water Management Plan. June 28, 2016.
- Watershed Coalition of Ventura County (WCVC). 2014. 2014 Integrated Regional Water Management Plan.
- US. Census Bureau. 2016. 2012-2016 American Community Survey 5-Year Estimates. Available at: <https://factfinder.census.gov/bkmk/cf/1.0/en/county/Ventura County, California/ALL>. Accessed on February 6, 2018.
- US Drought Monitor. 2012. California Drought Map, March 13, 2012.

Section 7: Letters of Support and Commitment

PROVIDED AS SEPERATE ATTACHMENTS.

State Water Resources Control Board

Division of Drinking Water

May 4, 2017

Attn: Mike Ellis, O&M Manager
United Water Conservation District
106 North 8th Street
Santa Paula, CA 93060

System Number 5610046 – Request for Iron and Manganese Waiver for the OH System

Dear Mr. Ellis,

Thank you for submitting United Water Conservation District's (UWCD) iron and manganese waiver request, dated March 20, 2017, to the Division of Drinking Water (DDW). DDW has reviewed the request and summarizes its finding below.

UWCD uses three deep wells to supplement their main supply from eight shallow wells. These wells are typically used only during drought conditions such as those UWCD has experienced during recent years. Prior to the current drought, the deep wells had not been used to supplement the water supply for 16 years. Generally they are maintained as standby sources, but due to the current drought they have taken an active role in supplementing the water supply. These three deep wells exceed the iron and manganese secondary standards. Samples collected from the deep wells during April and October of 2016 averaged 585 µg/L of iron, and 137 µg/L of manganese.

UWCD is a wholesale water supplier delivering potable water to eight entities including the City of Oxnard, Naval Base Ventura County - Port Hueneme and Point Mugu, Port Hueneme Water Agency, Mutual Water Company of Vineyard Avenue Estates, Dempsey Road Mutual Water Company, Saviers Road Mutual Water Company, Cypress Mutual Water Company, and the El Rio School District. A one-year iron and manganese waiver was granted to UWCD for 2016, based on a 2015 entity survey. During November of 2016, UWCD sent these entities a second survey requesting they choose between a no treatment option (extending the waiver by one year) and a treatment option. Capital costs associated with providing treatment have been estimated to be approximately \$4.4 million and operations and maintenance costs have been estimated to be approximately \$50-\$55 per acre-foot.

The results of the surveys are summarized on the next page.

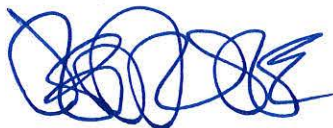
Public Water System	2015 Survey Answer	2016 Survey Answer
City of Oxnard	Provide Treatment	Extend Waiver
Naval Base Ventura County	Requests 1-Year Waiver	No Response
Mutual Water Company of Vineyard Avenue Estates	Requests 5-Year Waiver	Extend Waiver
Dempsey Road Mutual Water Company	Requests 5-Year Waiver	No Response
Cypress Mutual Water Company	Requests 5-Year Waiver	No Response
Port Hueneme Water Agency	Requests 1-Year Waiver	Extend Waiver
Saviers Road Mutual Water Company	Requests 5-Year Waiver	No Response
El Rio School District	No Response	No Response

Only three of the eight entities responded to the second survey. Of those responses, all three responded with a request to extend the waiver. Of the five that did not respond, three previously requested a five-year waiver, one requested a one-year waiver, and one did not respond to the first survey. Non-responses are counted as a request to provide treatment.

UWCD has requested DDW renew the iron and manganese for an additional one year. Due to the number of non-responses to the 2016 survey, five of the eight votes are counted toward providing treatment and not extending the waiver. Therefore, should UWCD want to continue use of the deep wells past this date, it shall provide treatment to ensure that the OH System remains in compliance with the iron and manganese standards, or comply with the requirements of Section 64449.4 of the California Code of Regulations including public notification of the use of the wells.

If you have any questions regarding this letter, please contact Matthew Foster at (805) 566-6625 or matt.foster@waterboards.ca.gov.

Sincerely,



Jeff Densmore, P.E., District Engineer
Santa Barbara District
Division of Drinking Water
State Water Resources Control Board

cc: Ventura County Environmental Health Division

Section 8: Official Resolution

A draft official resolution authorizing United's Board of Directors to submit this grant application, commit to the financial and legal obligations, and negotiate and execute the grant agreement is provided.

The resolution will be approved by the Board of Directors on February 14, 2018. Upon approval and execution, a final copy will be submitted to Reclamation

RESOLUTION 2018-
**A RESOLUTION OF THE BOARD OF DIRECTORS OF UNITED WATER
CONSERVATION DISTRICT AUTHORIZING THE DISTRICT'S APPLICATION,
AND APPROVING NEGOTIATION AND EXECUTION OF A COOPERATIVE
AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION FOR A
WATERSMART DROUGHT RESILIENCY GRANT (FUNDING OPPORTUNITY
NO. BOR-DO-18-F008) FOR THE IRON AND MANGANESE TREATMENT
PROJECT**

WHEREAS, the United Water Conservation District ("District") is organized and operates pursuant to the Water Conservation Act of 1931; and

WHEREAS, the District seeks to match local funds with federal funds provided by the United States Department of the Interior Bureau of Reclamation to increase efficient use of water, reduce energy demands, during drought times; and

WHEREAS, the Board of Directors of the District has reviewed and approves of the application for the Department of the Interior Policy and Administration, Bureau of Reclamation WaterSMART Drought Response Program: Drought Resiliency Projects BOR-DO-18-F008; and

WHEREAS, the District agrees to the administration and cost sharing requirements of the WaterSMART Grant criteria; and

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of United Water Conservation District, as follows:

Section 1. The District is hereby authorized to receive, if awarded, the WaterSMART Drought Response Program: Drought Resiliency Projects Grant funding in the amount of \$300,000 and to enter into an agreement with the Bureau of Reclamation for the receipt and administration of said grant funds.

Section 2. If awarded, the General Manager, or his designee, is hereby authorized to take any and all action which may be necessary for the completion and execution of the project agreement and to take any and all other action which may be necessary for the receipt and administration of the grant funding in accordance with the requirements of the Bureau of Reclamation.

Section 3. This resolution officially becomes a component part of the District's grant application.

Section 4. If any section, subsection, clause or phrase in this Resolution is for any reason held invalid, the validity of the remainder of this Resolution shall not be affected thereby. The Board of Directors hereby declares that it would have passed this Resolution and each section, subsection, sentence, clause, or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses or phrases or the application thereof be held invalid.

RESOLUTION No. 2018-XX
(continued)

PASSED, APPROVED AND ADOPTED at a regular meeting of the Board of Directors of the United Water Conservation District held on February 14, 2018

ATTEST: _____
Robert Eranio, Board President

ATTEST: _____
, Board Secretary/Treasurer

**UNITED WATER CONSERVATION DISTRICT SERVES THE
FOLLOWING:**

- **City of Oxnard**
- **Naval Base Ventura County – Port Hueneme and Point Mugu**
- **Port Hueneme Water Agency**
- **Mutual Water Company of Vineyard Avenue Estates**
- **Dempsey Road Mutual Water Company**
- **Saviers Road Mutual Water Company**
- **Cypress Mutual Water Company**
- **El Rio School District**

State Water Resources Control Board

Division of Drinking Water

May 4, 2017

Attn: Mike Ellis, O&M Manager
United Water Conservation District
106 North 8th Street
Santa Paula, CA 93060

System Number 5610046 – Request for Iron and Manganese Waiver for the OH System

Dear Mr. Ellis,

Thank you for submitting United Water Conservation District's (UWCD) iron and manganese waiver request, dated March 20, 2017, to the Division of Drinking Water (DDW). DDW has reviewed the request and summarizes its finding below.

UWCD uses three deep wells to supplement their main supply from eight shallow wells. These wells are typically used only during drought conditions such as those UWCD has experienced during recent years. Prior to the current drought, the deep wells had not been used to supplement the water supply for 16 years. Generally they are maintained as standby sources, but due to the current drought they have taken an active role in supplementing the water supply. These three deep wells exceed the iron and manganese secondary standards. Samples collected from the deep wells during April and October of 2016 averaged 585 µg/L of iron, and 137 µg/L of manganese.

UWCD is a wholesale water supplier delivering potable water to eight entities including the City of Oxnard, Naval Base Ventura County - Port Hueneme and Point Mugu, Port Hueneme Water Agency, Mutual Water Company of Vineyard Avenue Estates, Dempsey Road Mutual Water Company, Saviers Road Mutual Water Company, Cypress Mutual Water Company, and the El Rio School District. A one-year iron and manganese waiver was granted to UWCD for 2016, based on a 2015 entity survey. During November of 2016, UWCD sent these entities a second survey requesting they choose between a no treatment option (extending the waiver by one year) and a treatment option. Capital costs associated with providing treatment have been estimated to be approximately \$4.4 million and operations and maintenance costs have been estimated to be approximately \$50-\$55 per acre-foot.

The results of the surveys are summarized on the next page.

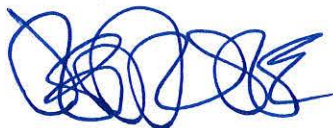
Public Water System	2015 Survey Answer	2016 Survey Answer
City of Oxnard	Provide Treatment	Extend Waiver
Naval Base Ventura County	Requests 1-Year Waiver	No Response
Mutual Water Company of Vineyard Avenue Estates	Requests 5-Year Waiver	Extend Waiver
Dempsey Road Mutual Water Company	Requests 5-Year Waiver	No Response
Cypress Mutual Water Company	Requests 5-Year Waiver	No Response
Port Hueneme Water Agency	Requests 1-Year Waiver	Extend Waiver
Saviers Road Mutual Water Company	Requests 5-Year Waiver	No Response
El Rio School District	No Response	No Response

Only three of the eight entities responded to the second survey. Of those responses, all three responded with a request to extend the waiver. Of the five that did not respond, three previously requested a five-year waiver, one requested a one-year waiver, and one did not respond to the first survey. Non-responses are counted as a request to provide treatment.

UWCD has requested DDW renew the iron and manganese for an additional one year. Due to the number of non-responses to the 2016 survey, five of the eight votes are counted toward providing treatment and not extending the waiver. Therefore, should UWCD want to continue use of the deep wells past this date, it shall provide treatment to ensure that the OH System remains in compliance with the iron and manganese standards, or comply with the requirements of Section 64449.4 of the California Code of Regulations including public notification of the use of the wells.

If you have any questions regarding this letter, please contact Matthew Foster at (805) 566-6625 or matt.foster@waterboards.ca.gov.

Sincerely,



Jeff Densmore, P.E., District Engineer
Santa Barbara District
Division of Drinking Water
State Water Resources Control Board

cc: Ventura County Environmental Health Division



City of Port Hueneme

Administration

February 12, 2018

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Kevin Connolly
PO Box 25007, MS 84-27814
Denver, CO 80225

**SUBJECT: SUPPORT FOR THE UNITED WATER CONSERVATION DISTRICT
IRON AND MANGANESE TREATMENT PROJECT**

To Whom It May Concern:

On behalf of the City of Port Hueneme, we would like to express our strong support for the United Water Conservation District (District) Iron and Manganese Treatment Project, and the application for funding through the Bureau of Reclamation's FY-2018 WaterSMART Drought Response Program: Drought Resiliency Projects BOR-DO-18-F008.

The El Rio Water Treatment and Groundwater Recharge Facility was originally constructed in 1955 to 1956 for the purpose of minimizing seawater intrusion by reducing local groundwater pumping near the coastline and to provide supplemental drinking water supplies through the Oxnard-Hueneme (O-H) Pipeline to the Cities of Oxnard, Port Hueneme, Naval Base Ventura County – Point Mugu and Port Hueneme and several Mutual Water Companies. This site was selected because of its location within the Oxnard Forebay, which exhibits excellent recharge capabilities and contains a hydraulic connection between the upper and lower (confined) aquifer systems in the Oxnard Plain. Surface water from the Santa Clara River is distributed into a series of basins totaling approximately 80 acres and is extracted through a system of twelve (12) wells. The wells were constructed at different depths with nine (9) shallow wells at approximately 300 feet and three (3) deep wells at over 1,000 feet. Due to the Surface Water Treatment Rule, eight (8) of the shallow wells require disinfection (chloramines).

As a result of recent drought conditions that started in 2011, nitrate concentrations in the shallow wells have been increasing with gradually declining groundwater levels. Nitrates are known to cause a condition known as Methemoglobinemia or "Blue Baby Syndrome". Production from the deep wells and subsequent blending with shallow

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wells has helped to maintain nitrate concentrations below the primary Maximum Contaminant Level (MCL) which is regulated by the State Water Resources Control Board's (SWRCB) Division of Drinking Water (DDW). However, the deep wells contain high levels of iron and manganese which effect taste, color and odor.

To address this problem, the project would construct an iron and manganese filtration process for the deep well operation at the El Rio Facility to blend directly with shallow wells prior to the disinfection process. The project includes variable frequency drive upgrades to the existing deep wells in addition to upgrades to an existing settling basin that would be used for recovery of filter backwash water. This would allow the impacted wells to continue supplying the reginal area with high quality water.

Project Benefits

Specific benefits of the Project include the following:

- The project would improve the operational flexibility and drought resilience of the O-H Pipeline system by ensuring that water can be delivered to O-H Pipeline customers even during severe drought conditions while meeting both primary and secondary drinking water standards.
- The project ensures the continued use of local resources that can be replenished in lieu of expensive imported State Water Project water which is sourced from the environmentally sensitive Sacramento River Delta.
- The project directly benefits several economically disadvantaged communities that receive drinking water from the O-H Pipeline system.

Thank you for the opportunity to express our support for the District's Iron and Manganese Treatment Project. We strongly urge your thoughtful consideration of the Project.

Sincerely,



Sylvia Munoz-Schnopp
Mayor, City of Port Hueneme



250 North Ventura Road • Port Hueneme, CA 93041 • (805) 986-6563

February 12, 2018

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FEB 21 '18 AM 10:10

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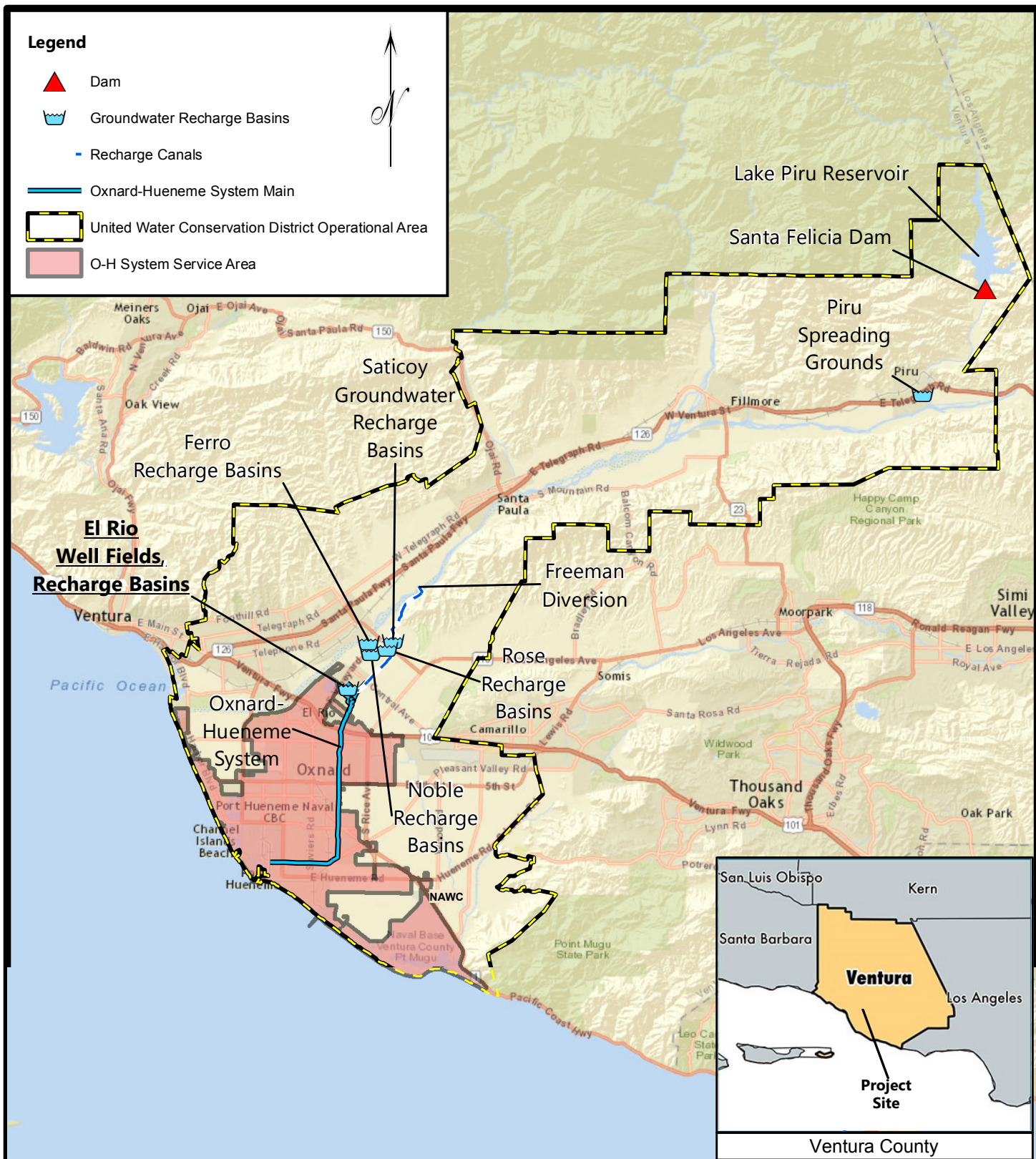
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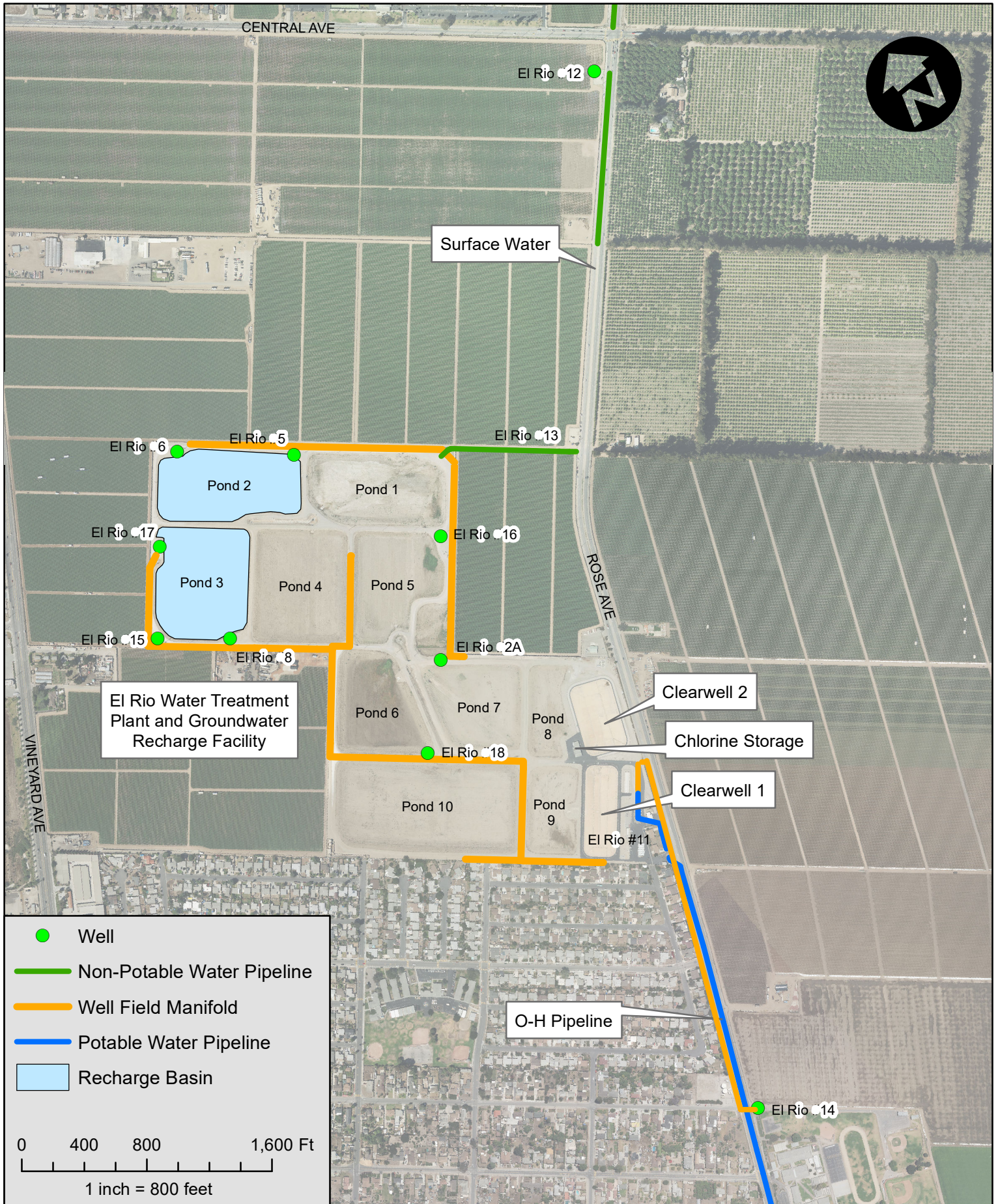


Rod B. Butler
Executive Director
Port Hueneme Water Agency



0 2.5 5
Miles
1 inch = 5 miles

Figure 1
United Water Conservation District
Service Area Boundary
and Key Facilities



● Well
 — Non-Potable Water Pipeline
 — Well Field Manifold
 — Potable Water Pipeline
 Recharge Basin

0

400

800

1,600 Ft

1 inch = 800 feet